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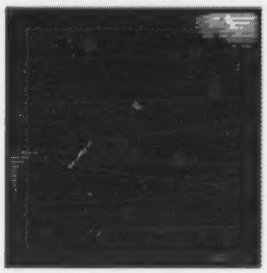
User Guide for the Survey of Household Spending, 2010



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User Guide for the Survey of Household Spending, 2010

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User information

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

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User Guide for the Survey of Household Spending, 2010

1 Introduction

This guide presents information of interest to users of data from the 2010 Survey of Household Spending (SHS). It includes descriptions of the survey methodology and data quality, and definitions of survey terms and variables. There is also a section describing various statistics that can be drawn from the survey data. The SHS is conducted annually in the 10 provinces and usually every other year in the territories.

The SHS has been redesigned with the aim to better adapt the collection methods and the reference periods to the capacity of the respondent to provide accurate information. Thus, the 2010 survey used a different collection methodology from previous surveys.

The new methodology combines a questionnaire with recall periods based on the type of expenditure (1, 3 or 12 months, last payment, four weeks) and a daily expenditure diary that the household completes for two weeks following the interview. As well, data collection is now continuous throughout the year. This methodology is similar to the one used by most household spending surveys in other countries.

Although the expense data collected in the 2010 SHS are similar to those of previous years, the changes to data collection, processing and estimation methods have created a break in the data series. As a result, caution should be used in comparing the 2010 SHS data with previous years, unless otherwise noted. To help users understand the impact of the new methodology on expenditure estimates, the 2009 data were collected using both the old methodology (the official estimates published on December 17, 2010) and the new one. The results of the comparisons will be available a few weeks after the release of the 2010 data.

Further, using reference periods of varying lengths to collect household spending data and the continuous collection affect the period to which the survey's expenditure estimates refer (see section 2.7).

This survey was conducted from January 2010 to December 2010 using a sample of 19,541 households in the 10 provinces (the territories were not included in the 2010 survey). Detailed spending information was collected, as well as limited information on dwelling characteristics and household equipment. Also, the SHS now incorporates a significant amount of content from the Food Expenditure Survey (FES), last conducted in 2001.

Household expenditure estimates are available for the national and provincial levels and by household tenure, age of reference person, size of area of residence, type of household and household income quintile. Detailed estimates on food expenditures are also available.

For custom tabulations or more information on the SHS redesign, please contact Client Services (613-951-7355, 1-888-297-7355 or *income@statcan.gc.ca*), Income Statistics Division.

2 Survey methodology

2.1 The target population

The target population of the 2010 SHS is the population of Canada's 10 provinces, excluding residents of institutions, members of the Canadian Forces living in military camps and people living on Indian reserves. In all, these exclusions make up about 2% of the population of the 10 provinces.

For operational reasons, people living in some remote areas where the rate of vacant dwellings is very high and where the collection cost would be exorbitant are excluded from collection. Also excluded, in addition to people living in institutions, are people living in other types of collective dwellings:

- people living in residences for dependent seniors; and
- people living permanently in school residences, hotels and motels, work camps, etc.; and
- members of religious and other communal colonies.

Collection exclusions make up less than 0.5% of the target population. However, these people are included in the population estimates to which the SHS estimates are adjusted (see section 2.6).

2.2 The survey content and reference periods

The SHS primarily collects detailed information on household expenditures. It also collects information about the annual income of household members, demographic characteristics of the household, certain dwelling characteristics (e.g., type, age and tenure) and certain information on household equipment (e.g., electronics and communications equipment).

For expenditure information collected with the questionnaire, the length of the reference period depends on the question (e.g., the past month, the past three months, or the past 12 months). The period covered also varies with the collection month (e.g., for households in the January 2010 sample, "the past 12 months" means the period from January 2009 to December 2009, while for households in the December 2010 sample, it refers to the months between December 2009 and November 2010). Expenditures collected in the daily expenditure diary are reported for a period of two weeks.

In general, longer reference periods are used for goods and services that are more expensive or purchased infrequently or irregularly. On the contrary, shorter reference periods are used for goods and services that are of less value or purchased frequently or at regular intervals.

For demographic characteristics, dwelling characteristics and household equipment, the reference period is the interview date. For income, the reference period is the calendar year preceding the survey year (i.e. 2009 for SHS 2010).

2.3 The sample design

The sample of the 2010 Survey of Household Spending consists of 19,541 households spread over the 10 provinces.

A stratified, multi-stage sampling plan was used to select the sample. It is generally a two-stage plan, the first stage being a sample of geographic areas (referred to as clusters). Then a list of all the dwellings in the selected clusters is prepared, and a sample of dwellings is selected. The selected dwellings that are inhabited by members of the target population constitute the survey's sample of households. The SHS uses a number of components of the Labour Force Survey's (LFS) sample design to minimize operating costs, though the dwellings selected are different.

The national sample is first divided among the provinces on the basis of the variability of total household expenditures and, to a lesser extent, the number of households in each province. The goal is to obtain estimates of similar quality at the provincial level. The sample sizes for the provinces are shown in Table 1 in Section 3. The sample is then divided among the strata defined by grouping clusters with similar characteristics based on a number of socio-demographic variables. Some strata were defined to target specific subpopulations, such as the high-income household strata. To improve the quality of the estimates, the high-income household strata are allocated a larger share of the sample than the other strata, where an allocation proportional to stratum size is used.

Since data are collected monthly, the sample is divided into 12 subsamples of similar size. During that process, the SHS sample is coordinated with the samples of the LFS and, to a lesser extent, the Canadian Community Health

Survey (CCHS), which use the same sampling frame and conduct personal interviews for part of their sample. Coordination means that, wherever possible, if a cluster is selected for more than one survey, collection for the surveys will take place in the same month. This will enable the interviewer to become familiar with the neighbourhood, collect the data and carry out the necessary follow-up for more than one survey at a time.

2.4 Data collection

The SHS is a voluntary survey. For the most part, the data are obtained directly from the respondent by combining two collection modes: a personal interview conducted by an interviewer using a questionnaire on a laptop, and a diary in which the household is required to report its daily expenditures over a two-week period. The data were collected on a continuous basis from January to December 2010 from a sample of households spread over 12 monthly collection cycles.

First, households in the sample are asked to complete a questionnaire that, for the most part, collects regular expenditures (such as rent and electricity) and less frequent expenditures (such as furniture and dwelling repairs) for a reference period that varies in length depending on the type of expenditure. For regular expenditures, the last-payment method is usually used. It involves collecting the amount of the last payment and the period it covered. For the other types of expenditures collected in the interview, reference periods of one month, three months or twelve months are generally used. The periods are defined in terms of months preceding the month of the interview. For example, for a household in the June sample, "the past three months" means the period from March 1 to May 31, 2010. The demographic characteristics, dwelling characteristics and household equipment, which are also collected in the interview, relate to the household's situation at the time of the interview. In addition, respondents are asked to provide the income for the calendar year previous to the survey year for all household members aged 16 and over (at the time of the interview). However, respondents who give Statistics Canada permission to access their income tax returns are not required to answer the questions about personal income.

Following the interview, respondents are asked to record the expenditures of all household members in a daily expenditure diary for a period of two weeks starting the day after the interview. Households are required to include almost all their spending, except a few types of expenditures, such as rent, regular utilities payments and real estate and vehicle purchases. Households have the option of providing receipts to reduce the amount of information recorded in the diary. However, they are asked to write out additional information on the receipt if the description is incomplete.

Telephone follow-up is carried out a few days after the interview to find out if the respondent has any questions about the diary and to reiterate important information about how to complete it. At the end of the two-week period, the interviewer returns to the respondent's residence to pick up the diary and ask a few additional questions to help the respondent report expenditures that he or she might have forgotten.

The diaries and all receipts supplied by respondents are scanned and captured at Statistics Canada's Head Office. An expenditure classification code is assigned to each item from a list of more than 600 different codes.

2.5 Data processing and quality control

The computerized questionnaire contains many features designed to maximize the quality of the data collected. Many edits are built into the questionnaire to compare the reported data with unusual values and detect logical inconsistencies. When an edit fails, the interviewer is prompted to correct the information (with the respondent's help, if necessary). Once the data are transmitted to Head Office, a comprehensive series of processing steps is undertaken for the purpose of detailed verification of each questionnaire. Invalid responses are corrected or flagged for imputation.

A number of edits are also carried out on the diary data when the diaries are received at Head Office and throughout the capture and coding steps. For example, checks are carried out to ensure that the start and end dates of the reference period of the diary are indicated, that the reported expenditures were made during the specified reference period, and that there are no items that appear in both the data recorded in the diary and the receipts

provided by the respondent. After validation, capture and coding, quality control procedures are applied. A sample of diaries is selected and completely rechecked to ensure that the diaries were captured and coded as specified in the procedures.

Then a series of detailed edits are performed on all diaries. Invalid responses are corrected or flagged for imputation. The final step is to assess whether the information reported in the diaries is of sufficient quality using parameters which differ according to the household characteristics. The reported expenditures and number of items are compared with minimum thresholds estimated for each geographic area (Atlantic Provinces, Quebec, Ontario, Prairie Provinces and British Columbia), each household income class and each household size. Diaries that satisfy the conditions are deemed usable. The other diaries are examined. They will be deemed usable if there is a note explaining their low expenditures or their small number of reported items (for example a person living alone who had few expenses to report because he/she was on a business trip during the diary recording period). Diaries that do not meet the usability criteria are treated the same as non-response diaries; they are excluded from the estimates. It should be noted that some of the usable diaries are incomplete and could have non-responded days.

To solve problems of missing or invalid information in interview questions, donor imputation by the nearest neighbour method is generally used. Data from another respondent with similar characteristics (the donor) are used to impute. The imputation is done on one group of variables at a time, with the groups formed on the basis of the relationships among the variables. The characteristics used to identify the donor are selected such that they are correlated with the variables to be imputed. Household income, dwelling type and number of adults and children are commonly used characteristics. For operational reasons, the income information from personal income tax returns is not available in time for imputation of the survey data. Consequently, the household income used for imputation is taken from an additional question on total household income that is asked during the interview exclusively for the purpose of data imputation.

Donor imputation is also used when information is missing from the daily expenditure diary. A respondent may have reported a particular expenditure item without its cost or given the total amount spent (on groceries, for example) without listing the individual items. Imputation is also used to enhance the level of detail in coding the items reported. For example, the information provided by the respondent may simply indicate that a bakery product was purchased, but a more detailed code is required to meet the survey's needs. In this case, donor imputation is used to impute the type of bakery product (bread, crackers, cookies, cakes and other pastries, etc.). Diary imputation is carried out at the reported item level, and the characteristics most often used to identify the donor are cost, available partial code, household income and household size. Imputation is done by province and quarter to control for provincial differences and seasonality of expenditures.

Expenditure imputation is performed primarily with Statistics Canada's Canadian Census Edit and Imputation System (CANCEIS).

For personal income, people who give their consent are matched to the tax data file. Missing or invalid tax data are generally donor imputed.

2.6 Estimation

The estimation of population characteristics from a sample survey is based on the premise that each sampled household represents a certain number of other households in addition to itself. This number is referred to as the survey weight, and the weighting process involves computing the weight assigned to each household. There are a number of steps in that process.

First, each household is given an initial weight equal to the inverse of its selection probability. This weight is then adjusted to compensate for non-respondent households. Since a number of households answer the questionnaire but refuse to complete the diary, different weights are computed for the interview questionnaire and the diary.

The interview weights are then adjusted so that selected survey estimates agree with aggregates or estimates from independent auxiliary sources.

The first source is the number of persons by age group and the number of households by household size from population estimates produced by the Demography Division using data from the 2006 Census. Annual estimates of the number of persons in eight age groups (0–6, 7–17, 18–24, 25–34, 35–44, 45–54, 55–64 and 65+) are used at the provincial level and two age groups (0–17 and 18+) at the CMA level. For the number of households, the weights are calibrated to the annual provincial estimates for three household size categories (one, two, and three or more persons) and to quarterly provincial estimates of the total number of households. Quarterly estimates are used to ensure that each sub-annual period is adequately represented in the survey estimates.

The second source is the Statement of Remuneration Paid (T4) data from the Canada Revenue Agency, which ensure that the survey's weighted distribution of income (on the basis of wages and salaries) agree with the income distribution of the Canadian population. Interview weights are therefore calibrated to the T4 accounts of the number of persons per province in six categories of wages and salaries on the basis of provincial percentiles (0th–25th, 25th–50th, 50th–65th, 65th–75th, 75th–95th and 95th–100th).

The diary weights are adjusted to population estimates in the same way as the interview weights. They are also calibrated to the estimated number of households per income group by province calculated from the interview data. Specifically, the estimated number of households for each provincial quintile of total household income is used. The adjustment to the interview estimates ensures that the weighted income distribution of diary-respondent households is consistent with the weighted income distribution of interview-respondent households.

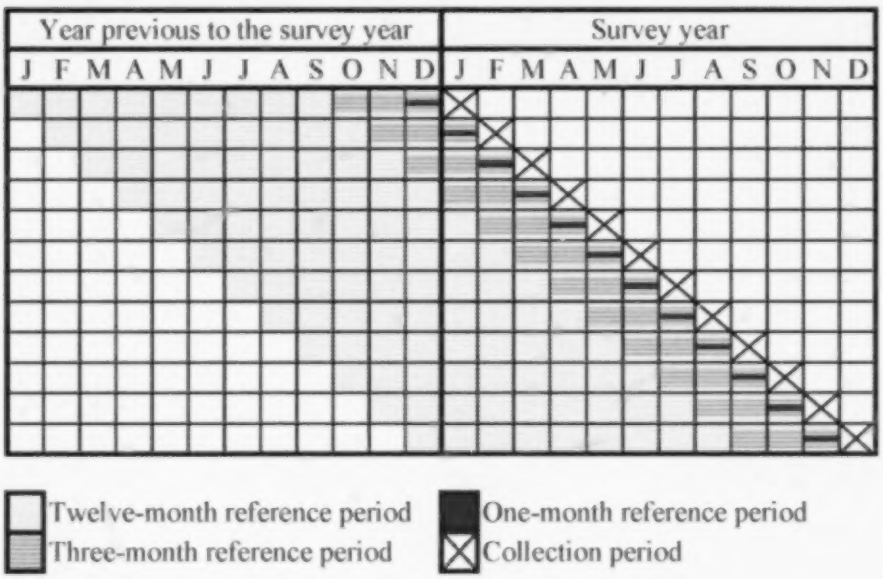
All expenditure variables in the interview and diary are annualized by multiplying them by a factor appropriate for the reference period. For the diary, this factor includes as well an adjustment for the non-responded days. The estimates for a given expenditure category collected from the interview are therefore the weighted sums (using interview weights) of the annualized amounts. The estimates of an expenditure category derived from diary data are calculated in a similar manner using diary weights. Lastly, summary expenditure category estimates that include components from both collection methods are produced by taking the sum of the estimates of the diary and the interview components. This approach is used not only for aggregate spending estimates, but also for average expenditure per household (see section 6.3).

2.7 Reference period of the estimates

With continuous monthly collection, the reference period of the data differs from one month to the other, as illustrated in Figure 1. For example, for an expenditure item with a three-month reference period, the data from the July sample covers expenditures made between April 1 and June 30, whereas the data from the December sample covers expenditures made between September 1 and November 30.

Figure 1

Monthly sample reference periods of three different lengths


Year previous to the survey year
Survey year
J F M A M J J A S O N D J F M A M J J A S O N D
Twelve-month reference period
Three-month reference period
One-month reference period
Collection period

SHS estimates are produced by combining the data from the 12 monthly collection cycles and by annualizing the expenditures collected over various reference periods in order to standardize them. The period covered by the estimates is therefore a function of the length of reference period and of the collection months considered.

When combining the data of the 12 collection cycles to generate estimates for expenditure items with short reference periods (e.g., one month), the expenditures that are covered occur mostly in the survey year. That is also true for all expenditure data collected with the diary. As for expenditure items with a 12-month reference period, the data collected include expenses occurring between January of the year before the survey year and November of the survey year, depending on the collection month.

The hypothesis that the estimates produced from the SHS cover a single period when the data from 12 collection cycles has been combined assumes that expenditures made during the survey year and during the previous year are similar for items collected using a 12 month reference period. Thus, the validity of this hypothesis affects the interpretation of comparisons between expenditures collected over short periods and expenditures collected over a 12 month period.

The "limits" of the collection model in producing expenditure estimates covering the same period (or the same year) are known since the majority of countries use this methodology. Despite any limitations, continuous collection with reference periods adapted to the ability of the respondent to provide the information is considered preferable in order to obtain data that reflects households' true expenditures.

2.8 Historical revisions

The 2010 SHS estimates were computed with weights adjusted to 2010 population estimates. These population estimates were based on 2006 Census data and more recent information from administrative sources such as birth, death and migration registers.

SHS estimates in previous years are based on weights calibrated to population estimates produced using data from the 2001 Census. There is no plan to revise theses estimates (based on the 2006 Census data) due to the break in the data series starting with the 2010 SHS.

2.9 Comparability over time

The SHS has been conducted each year since 1997. This survey includes most of the content of its predecessors, the periodic Family Expenditure Survey and the Household Facilities and Equipment Survey. Some changes to the methodology and definitions were made between 1997 and 2009, but the SHS was primarily based on an interview during the first quarter of the year in which households reported expenses incurred in the preceding calendar year.

The new methodology introduced for the 2010 survey combines a questionnaire and a diary to collect the expenditures. The reference periods have been reduced for many expenditure items and collection is now continuous throughout the year. Although the expense data collected in the 2010 SHS are similar to those of previous years, the changes to data collection, processing and estimation methods have created a break in the data series. As a result, caution should be used in comparing the 2010 SHS data with previous years, unless otherwise noted. To help users understand the impact of the new methodology on expenditure estimates, the 2009 data were collected using both the old methodology (the official estimates published on December 17, 2010) and the new one. The results of the comparisons will be available a few weeks after the release of the 2010 data.

The 2010 SHS incorporates a significant amount of content from the Food Expenditure Survey (FES), last conducted in 2001. Although there are some differences between the 2010 SHS and FES methodologies, food expenditure data in both surveys have been collected using a daily expenditure diary that households are asked to fill in for a period of two weeks. The content of the SHS diary is slightly less detailed than that of the FES diary (e.g., the weight and quantity of foods are not collected) to limit the SHS respondent's burden.

The content of the 2010 SHS has also been reviewed to reduce the time required for the interview. A number of components regarding household equipment and dwelling characteristics and most of the questions regarding changes in household assets and liabilities have been dropped. Some definitions have also been changed. As well, starting with the 2010 survey, the data related to household income and income tax come mainly from an administrative data source.

Finally, the 2010 SHS estimates were computed with weights adjusted to 2010 population estimates. These population estimates were based on 2006 Census data. However, SHS estimates in previous years (2001-2009) are based on weights calibrated to population estimates produced using data from the 2001 Census.

3 Data quality

Like all surveys, the SHS is subject to error, despite all the precautions taken in each step of the survey to prevent them or reduce their impact. There are two types of error: sampling and non-sampling.

3.1 Sampling errors

Sampling errors occur because inferences about the entire population are based on information obtained from only a sample of the population. The sample design, estimation method, sample size and data variability determine the size of the sampling error. The data variability for an expenditure item is the difference between members of the population in spending on that item. In general, the greater the differences between households, the larger the sampling error will be.

A common measure of sampling error is the standard error (SE). The SE is the degree of variation in the estimates as a result of selecting one particular sample over another. The SE expressed as a percentage of the estimate is called the coefficient of variation (CV). The CV is used to indicate the degree of uncertainty associated with an estimate. For example, if the estimated number of households having a given dwelling characteristic

is 10,000 with a CV of 5%, then the actual number is between 9,500 and 10,500 households 68% of the time, and between 9,000 and 11,000 households 95% of the time.

The standard errors for the SHS are estimated using the bootstrap method (see reference [1] in section 8). CVs are available for the national and provincial estimates as well as for the estimates by household type, age of reference person, household income quintile, household tenure and size of area of residence.

3.2 Data suppression

To ensure accuracy, we want to suppress the estimates for which the CVs have been estimated at more than 33%. However, from an operational standpoint, when tables are created, the suppression rule is based on the number of households that declare an expense for an item. Indeed, there is a relationship between the CV and the number of reporting households, and analyses carried out on a very large number of SHS estimates show that a threshold of 30 reporting households generally allows for a CV of at most 33% for the expenditure estimates.

However, data for suppressed items do contribute to summary level variables. For example, the expenditure estimate for a particular item of clothing might be suppressed but this amount is included in the total estimate for clothing expenditure.

3.3 Non-sampling errors

Non-sampling errors occur because certain factors make it difficult to obtain accurate responses or responses that retain their accuracy throughout processing. Unlike sampling errors, non-sampling errors are not readily quantified. Four sources of non-sampling error can be identified: coverage error, response error, non-response error and processing error.

3.3.1 Coverage error

Coverage error arises when sampling frame units do not adequately represent the target population. This error may occur during sample design or selection, or during data collection or processing.

3.3.2 Response error

Response error occurs when respondents provide inaccurate information. This error may be due to many factors, including faulty design of the questionnaire, misinterpretation of questions by interviewers or respondents, or faulty reporting by respondents.

In general, the accuracy of SHS data depends largely on respondents' ability to remember household expenditures and their willingness to consult records. The new data collection method is being implemented primarily to reduce recall errors through the shortening of reference periods for a number of expenditure categories and through the use of a daily expenditure diary to collect data on frequent small expenditures. Still, response error is the most difficult aspect of data quality to measure.

3.3.3 Non-response error

Errors due to non-response occur when potential respondents do not provide the required information or the information they provide is unusable. The main impact of non-response on data quality is that it can cause a bias in the estimates if the characteristics of respondents and non-respondents differ and the difference has an impact on the expenditures studied. While non-response rates can be calculated, they provide only an indication of data quality, since they do not measure the bias associated with the estimates. The magnitude of non-response can be considered a simple indicator of the risks of bias in the estimates.

For the 2010 SHS, the interview response rate is 66.9%, and provincial response rates are shown in Table 1. The table also shows the number of non-responding households by reason for non-response. Reasons include the

inability to contact the household, the household's refusal to participate in the survey and the inability to hold an interview because of special circumstances (e.g., the respondent speaks neither official language or has a physical condition that precludes an interview).

Text table 1
Interview's response rates, Canada and provinces, 2010

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response [1] rate
	number					percentage
Canada	19,541	1,692	4,015	759	13,075	66.9
Atlantic provinces	6,268	417	1,262	251	4,338	69.2
Newfoundland and Labrador	1,632	117	252	66	1,197	73.3
Prince Edward Island	861	53	187	34	587	68.2
Nova Scotia	2,004	124	441	85	1,354	67.6
New Brunswick	1,771	123	382	66	1,200	67.8
Quebec	2,569	162	629	80	1,698	66.1
Ontario	2,901	373	592	178	1,758	60.6
Prairie provinces	5,509	537	1,060	173	3,739	67.9
Manitoba	1,808	181	364	65	1,198	66.3
Saskatchewan	1,707	126	300	31	1,250	73.2
Alberta	1,994	230	396	77	1,291	64.7
British Columbia	2,294	203	472	77	1,542	67.2

1. (Respondent households/Eligible sampled households) x 100.

Some of the interview respondents did not complete a diary, or the diary they provided was considered unusable under the criteria set out in section 2.5. For the 2010 SHS, the diary response rate of interview respondents is 69.3%, and provincial rates are given in Appendix I. The final diary response rate is 46.4% nationally, and provincial rates are shown in Table 2.

Text table 2
Diary's response rates, Canada and provinces, 2010

	Eligible [1] sampled households	Interview [2] non-respondents	Diaries [3]			Response [4] rate
			Refusal	Unusable	Usable	
	number					percentage
Canada	19,541	6,466	3,567	446	9,062	46.4
Atlantic provinces	6,268	1,930	989	198	3,151	50.3
Newfoundland and Labrador	1,632	435	231	59	907	55.6
Prince Edward Island	861	274	163	20	404	46.9
Nova Scotia	2,004	650	375	62	917	45.8
New Brunswick	1,771	571	220	57	923	52.1
Quebec	2,569	871	426	49	1,223	47.6
Ontario	2,901	1,143	534	44	1,180	40.7
Prairie provinces	5,509	1,770	1,094	112	2,533	46.0
Manitoba	1,808	610	319	29	850	47.0
Saskatchewan	1,707	457	417	33	800	46.9
Alberta	1,994	703	358	50	883	44.3
British Columbia	2,294	752	524	43	975	42.5

1. The eligible sampled households are the same for the interview and the diary.
2. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. (Usable diaries/Eligible sampled households)x100.

The response rate varies from month to month. Monthly response rates for the interview and diary can be found in Appendix II. Interview and diary response rates by size of area of residence and dwelling type can be found in Appendix III.

The diary response rate of interview respondents can be found in Appendix IV, broken down by various households' characteristics, including household type, household tenure, age of the reference person and before-tax income quintile.

Cases in which the respondent fails to answer some of the questions are referred to as partial non-response. Imputing missing values compensates for this partial non-response. Imputation rates are described under "Imputation of partial non-response".

There are also cases in which a household fails to complete the diary for all 14 days as required, leaving days with no data. Adjustment factors were thus calculated to take into consideration these days with no data.

3.3.4 Processing error

Processing errors may occur in any of the data processing stages, including data entry, coding, editing, imputation of partial non-response, weighting and tabulation. Steps taken to reduce processing error are described in section 2.5.

3.3.5 Imputation of partial non-response

The residual bias remaining after the imputation of partial non-response is difficult to measure. It depends on the imputation method's ability to produce unbiased estimates. The imputation rates provide an indication of the magnitude of partial non-response.

Partial interview non-response may result from a lack of information or an invalid response to a question. The national and provincial percentages of households for which certain categories of expenditures had to be imputed because of partial interview non-response is shown in Table 3, by number of imputed expenditure variables per household (out of all consumer expenditure data collected during the interview). The table contains two series of results, including and excluding expenditures on residential communications services (telephone, wireless and Internet), cable television, satellite distribution, and security systems. This distinction has been made because those services are increasingly being purchased as a package. Households are often billed for bundled services, making it difficult or impossible to provide separate expenditure data for each service. Therefore, the total amount paid for the package is allocated to individual services through imputation, which significantly increases the number of households for which expenditures must be imputed.

Text table 3
Percentage of households requiring imputation for consumer expenses collected during the interview, Canada and provinces, 2010

	Number of variables imputed [1] (out of 163)				Number of variables imputed [2] (out of 169)			
	1	2 to 9	10 or more	Total	1	2 to 9	10 or more	Total
	percentage							
Canada	21.0	26.3	3.4	50.8	10.4	58.1	4.9	73.4
Newfoundland and Labrador	20.8	24.2	1.8	46.8	8.8	61.7	2.5	73.0
Prince Edward Island	22.0	22.1	7.0	51.1	7.3	64.2	7.8	79.4
Nova Scotia	21.3	27.3	3.0	51.5	8.1	64.8	5.2	78.1
New Brunswick	19.8	20.8	2.6	43.3	10.8	50.2	3.4	64.4
Quebec	27.4	24.6	1.9	53.8	12.6	61.0	2.8	76.4
Ontario	20.0	28.4	2.2	50.6	11.6	54.1	4.0	69.7
Manitoba	19.9	31.3	3.2	54.3	12.0	53.9	5.3	71.2
Saskatchewan	18.0	28.3	6.5	52.8	7.8	61.8	8.4	78.0
Alberta	19.9	30.9	2.6	53.4	11.1	58.7	4.0	73.8
British Columbia	20.0	23.2	6.0	49.2	10.8	54.3	7.7	72.8

1. Excluding expenditures related to communications services in the home and rental services for cable television, satellite distribution and security systems.
2. Including expenditures related to communications services in the home and rental services for cable television, satellite distribution and security systems.

Users of expenditure estimates relating to residential communications services, cable and satellite television, and security systems should therefore take into account the high level of imputation of the expenditure data if they are examining individual services rather than the combined totals. A measure of the impact of imputation on each individual service has been produced and is discussed in Appendix V. This measure represents the proportion of the total value of the estimate obtained from imputed data.

The percentages of households that responded to the interview and for which dwelling characteristics or household equipment had to be imputed can be found in Appendix VI.

The imputation rates for all expenditures reported in the expenditure diary are shown in Tables 4 and 5. Table 4 deals with expenditures reported in the main section of the diary, for food bought from stores and other goods and services. Table 5 shows the imputation rates for the second section of the diary, on expenses from restaurants.

For expenditure data from diaries, imputation is used primarily to assign a value when the amount of a reported expenditure is missing, to assign a list of expenditure items (with individual costs) when only the total cost was provided (e.g., to assign grocery items and their individual cost when the respondent has provided only the total amount of the bill) or to assign an expenditure code that is more detailed than the one that could be assigned using the information from the respondent (e.g., the type of bakery product). The imputation rate for each of these three types of imputation is shown in Table 4. Each rate represents the proportion of imputed items out of all the expenditure items from the diaries.

Text table 4
Imputation rates by type of imputation for the section of the Diary on Food from stores and other goods and services, Canada, 2010

	Imputation rate
	percentage
Type of imputation	
Imputation of a missing cost for a reported expense	
Food from stores	1.4
Other goods and services	2.1
All expenditures	1.7
Imputation of expenditure items (and their individual cost) from a total expense	
Food from stores	14.9
Other goods and services	11.2
All expenditures	13.7
Imputation of detailed expenditure code	
Food from stores	8.1
Other goods and services	6.8
All expenditures	7.7

The risks of bias associated with the imputed data depend largely on the level of detail at which the SHS data are used. For example, food expenditure data in the SHS are produced at a high level of detail to meet the needs of FES users (last conducted in 2001). Food expenditures are categorized using a hierarchical system of more than 200 expenditure codes. For some reported expenditure items, the food product may have been known (e.g., dairy products or even milk), but the level of detail required (e.g., skim milk, 1% milk or 2% milk) had to be imputed. This type of imputation gives rise to a risk of bias only in expenditure estimates at a very detailed level. In other cases, however, almost no information on the type of expenditure was available before imputation (e.g., it was known only that the expenditure was for a good). When so little information is available, the risks of bias in the estimates of the expenditure categories are more significant. Additional results regarding the imputation of expenditure codes that are more detailed can be found in Appendix VII, which contains a breakdown of the imputed expenditure codes by the initial level of the information from the respondent.

Restaurant expenditures are reported using a slightly different format in the second section of the diary. Imputation is used primarily to assign a value when the total amount of the restaurant expenditure or the cost of alcoholic beverages is missing, or when the type of meal (breakfast, lunch, supper or snack and beverage) has not been specified. The imputation rate for each of these three types of imputation is shown in Table 5.

Text table 5
Imputation rates by type of imputation for the section of the Diary on Snacks, beverages and meals purchased from restaurants or fast-food outlets, Canada, 2010

	Imputation rate
	percentage
Type of imputation	
Imputation of total cost	0.72
Imputation of costs for alcoholic beverages	0.04
Imputation of restaurant type (breakfast, lunch, dinner or snack and beverages)	8.51

Lastly, households have the option of providing receipts or recording their expenditure information in the diary. Table 6 shows the percentage of expenditures reported using each method, for food expenditures, restaurant expenditures and other goods and services.

Text table 6
Methods for recording expenses in the diary, Canada, 2010

	Transcriptions	Receipts
	percentage	
Expenditure category		
Food	29.7	70.3
Restaurant	90.0	10.0
Other goods and services	49.9	50.1

Imputation rates vary depending on the expenditure reporting method. The rates in Tables 4 and 5 are shown by the expenditure reporting method in Appendix VIII.

3.4 The effect of large values

For any sample, estimates of totals, averages and SEs can be affected by the presence or absence of large values in the sample. Large values are more likely to arise from positively skewed populations. Such values are found in the SHS and are taken into account when the final estimates are generated.

4 Definitions

4.1 General concepts

4.1.1 Reference year of the survey

Corresponds to the data collection year, from January 1st to December 31st, 2010.

4.1.2 Household

A person or group of persons occupying one dwelling unit is defined as a "household". The number of households, therefore, equals the number of occupied dwellings.

4.1.3 Household member

A person normally residing in the dwelling unit at the time of the interview.

4.1.4 Reference person

The household member being interviewed chooses which household member should be listed as the reference person after hearing the following definition: "The household reference person is the member of the household mainly responsible for its financial maintenance (e.g., pays the rent, mortgage, property taxes, and electricity). When members of the household share the responsibility equally, choose one of these members to be shown as the reference person". This person must be a member of the household at the time of the interview.

4.1.5 Expenditures

The net cost of all goods and services received for private use within a given period (for example, 1, 3 or 12 months), whether or not the goods or services were paid for during that period, and regardless of whether these expenditures were made in Canada or abroad. Business expenditures are excluded.

4.1.6 Taxes included

All expenditures include the Goods and Services Tax, provincial retail sales taxes, tips, customs, duties and any other additional charges or taxes.

4.1.7 Gifts

Any expenditure may include gifts given to persons outside the household. Only the value of gifts of clothing is reported separately, as well as being included in the summary clothing category.

4.1.8 Insurance settlements

Where an insurance settlement was used to repair or replace property, the survey includes only the deductible amount paid for an item.

4.1.9 Trade-ins

Where a trade-in is used to lower the price of an item, most commonly a vehicle, the expenditure amount is the total cost after the trade-in. Real estate transactions are excepted.

4.2 Household characteristics

(Presented in the same order as they appear on the standard data tables)

4.2.1 Number of households in sample

Corresponds to the number of eligible sample households minus households that interviewers were unable to contact, households that refused to participate and households whose interview questionnaire were rejected for lacking too much information.

4.2.2 Estimated number of households

Estimation of the average number of private households during the reference year.

4.2.3 Household size

Number of persons in the household at the time of the interview.

4.2.4 Age of reference person

Corresponds to the age on December 31st of the reference year of the survey.

4.2.5 Household income before tax

Corresponds to the total income before tax received by the household the year prior to the reference year of the survey. It refers to income from all sources including government transfers: scholarships, bursaries and fellowships, wages and salaries before deductions, farm self-employment net income, non-farm self-employment net income, universal child care tax benefit, Old Age Security pension, CPP and QPP benefits, Employment Insurance benefits, social assistance, workers' compensation benefits, Federal GST/HST Credit, provincial tax credits, other government transfers, private retirement pensions, support payments received, other taxable income and income from a RDSP and investment income.

4.2.6 Homeowner

Household living in a dwelling owned (with or without a mortgage) by a member of the household at the time of the interview.

4.3 Selected household expenditures

(Presented in the same order as they appear on the standard data tables)

4.3.1 Total expenditure

The sum of total current consumption, personal taxes, personal insurance payments and pension contributions, and money gifts and contributions.

4.3.2 Total current consumption

Sum of the expenses for food, shelter, household operation, household furnishings and equipment, clothing and accessories, transportation, health care, personal care, recreation, education, reading materials and other printed matter, tobacco products and alcoholic beverages, games of chance, and other miscellaneous expenses.

4.3.3 Food purchased from stores

"Stores" includes all establishments where food can be bought, such as grocery stores, specialty food stores, department stores, warehouse-type stores, and convenience stores, but also frozen food suppliers, outdoor farmers' markets and stands, and all other non service establishments. The expenditures are net of cash premium vouchers or rebates at the cash register and include deposits paid for at the time of purchase. These deposits are excluded from the expenditures when reimbursed and are shown as negative expenditures (flow of money in) in the "Miscellaneous expenditures" section.

4.3.4 Food purchased from restaurants

"Restaurants" includes full service restaurants, fast-food outlets, cafeterias, but also refreshments stands, snack bars, vending machines, mobile canteens, caterers and chip wagons. Includes tips. Does not include expenses for alcoholic beverages.

4.3.5 Shelter

Principal accommodation (either owned or rented) and other accommodation such as vacation homes or accommodation while travelling.

4.3.6 Rent

Net rent, excluding rent paid for business, or rooms rented out. Includes additional amounts paid to landlord.

4.3.7 Tenants'/Homeowners' insurance premiums

Premiums paid for fire and comprehensive policies.

4.3.8 Repairs and maintenance (owned living quarters)

Covers expenditures for labor and materials for all types of repairs and maintenance, including expenditures to repair and maintain built-in equipment, appliances and fixtures. Expenditures related to alterations and improvements are excluded as they are considered as an increase in assets (investment) rather than an expense.

4.3.9 Water, fuel and electricity

Expenditures for services related to water and sewage, electricity, and natural gas and other fuel for the principal accommodation, whether rented or owned.

4.3.10 Property taxes and sewage charges

Refers to the amount billed, excluding any rebates. Special service charges (e.g., garbage, sewage), local improvements, and water charges are included if these are part of the property tax bill.

4.3.11 Accommodation away from home

Includes all expenses for accommodation while travelling. Excludes expenditures for accommodation that were part of a package trip.

4.3.12 Household appliances

Refers to the net purchase price after deducting trade-in allowance and any discount. Excludes appliances included in the purchase of a home.

4.3.13 Purchase of vehicles

Refers to the net purchase price, including extra equipment, accessories, and warranties bought when the vehicle was purchased, after deducting any trade-in allowance or separate sales. (Separate sales occur when a vehicle is sold independently by the owner, e.g., not traded in when purchasing or leasing another vehicle.)

4.3.14 Health care

Includes direct costs to household (out-of-pocket) net of the expenditures reimbursed, and health insurance premiums.

4.3.15 Package trips

Includes at least two components such as transportation and accommodation, or accommodation with food and beverages.

4.3.16 Tobacco products and smokers' supplies

Includes cigarettes, tobacco, cigars, matches, pipes, lighters, ashtrays, cigarette papers and tubes, and other smokers' supplies.

4.3.17 Alcoholic beverages

Includes alcoholic beverages purchased from stores and restaurants. Expenditures on supplies and fees for self-made beer, wine or liquor are also included.

4.3.18 Games of chance

Expenditures on all types of games of chance. The expenditures are not net of the winnings from these games.

4.3.19 Discount and refund

Presented in the data tables as "negative expenditures" since they represent a flow of money into the household instead of out of it.

4.3.20 Income taxes

The sum of federal and provincial income taxes payable for the taxation year prior to the reference year of the survey. Income taxes include taxes on income, capital gains and RRSP withdrawals, after taking into account exemptions, deductions, non-refundable tax credits, and the refundable Quebec abatement.

4.4 Dwelling characteristics

(Dwelling characteristics are collected as of the date of the interview)

4.4.1 Type of dwelling

Type of dwelling in which the household resided at the time of interview. A dwelling is a structurally separate set of living premises with a private entrance from outside the building or from a common hall or stairway.

- A **single detached** dwelling contains only one dwelling unit and is completely separated by open space on all sides from any other structure, except its own garage or shed.
- A **single attached** dwelling is a double or semi-detached unit (side-by-side) or a row or terrace unit.
- **Apartment** includes duplexes (two dwellings, situated one above the other), triplexes, quadruplexes and apartment buildings.
- **Other** dwellings include mobile homes, motor homes, tents, railroad cars or houseboats, which are used as permanent residences and are capable of being moved on short notice.

4.4.2 Repairs needed

Indicates the respondent's perception of the repairs the dwelling needed at the time of the interview to restore it to its original condition. Remodelling, additions, conversions, or energy improvements that would upgrade the dwelling over and above its original condition are not included.

- **Major repairs** include serious deficiencies in the structural condition of the dwelling, as well as the plumbing, electrical and heating systems. Examples include corroded pipes, damaged electrical wiring, sagging floors, bulging walls, damp walls and ceilings, and crumbling foundation.
- **Minor repairs** include deficiencies in the surface or covering materials of the dwelling and less serious deficiencies in the plumbing, electrical and heating systems. Examples include small cracks in interior walls and ceilings, broken light fixtures and switches, cracked or broken panes, leaking sinks, missing shingles or siding, and peeling paint.

4.4.3 Tenure

Housing status of the household at the time of the interview.

- **Owned with mortgage** indicates that the dwelling was owned by a household member and that there was a mortgage at the time of the interview.
- **Owned without mortgage** indicates that the dwelling was owned by a household member and that there was no mortgage at the time of the interview.
- **Rented** indicates that the dwelling was rented by the household or occupied rent-free at the time of the interview.

4.4.4 Year of move

Refers to the year the household moved into the dwelling.

4.4.5 Period of construction (for dwelling occupied at the time of the interview)

Refers to the year or period in which the original building was built.

4.4.6 Number of bathrooms (for dwelling occupied at the time of the interview)

Number of rooms in the dwelling with an installed bathtub and/or shower.

4.5 Household equipment

(Household equipment are collected as of the date of the interview)

4.5.1 Telephones (includes business use)

Includes telephones used for business if the business is conducted in the dwelling. Cordless phones are also included.

4.5.2 Cellular telephone

Includes cellular telephones and handheld text messaging devices with cell phone capability.

4.5.3 Compact disc player

A compact disc player may be a separate unit, part of a component or built in (as in a receiver/cassette recorder/compact disc combination unit).

4.5.4 Home computer

Excludes computers used exclusively for business purposes.

4.5.5 Internet use from home

Indicates whether the household accesses the Internet via a computer in the house. Includes cases where a home computer is used to link to a business computer located outside the dwelling for access to the Internet. Excludes cases where the Internet is accessed directly through a computer located outside the dwelling (e.g., library, workplace).

4.5.6 Owned vehicles

Number of vehicles (automobiles, trucks and vans) owned by members of the household at the end of the month prior to the time of the interview.

4.6 Classification categories of standard data tables

4.6.1 Canada

Canada-level data for 2010 include the 10 provinces only.

4.6.2 Province/territory

No data for the territories for 2010.

4.6.3 Household income quintiles

Income groupings are obtained by ranking the households responding to the interview in ascending order by the total income before tax of the households, then partitioning the households into five groups of similar size. The estimated number of households in each group should be the same in principle but differences may occur due to the weight of the household at the boundary of two quintiles, since this household must lie in either one or the other of these quintiles. Moreover, the specific methodology of the survey (with a series of weights for the interview and another series for the diary) ensures that the same estimate of the number of households for the interview and the diary will occur only if the quintiles are defined at the provincial level. For the national quintiles, there may be a difference between the estimate of the number of households based on either the interview weights or the diary weights. (See section 6 "Derivation of data tables".)

4.6.4 Housing tenure

Whether a household member owned or rented the dwelling in which the household lived at the time of the interview.

- **Owners** refers to all households living in a dwelling owned (with or without mortgage) by a household member at the time of the interview.
- **Owners with mortgage** owned the dwelling with a mortgage at the time of the interview.
- **Owners without mortgage** owned the dwelling without a mortgage at the time of the interview.
- Renters rented a dwelling at the time of interview (as a regular tenant, rent free, or with reduced rent)

4.6.5 Household type

Households are divided according to the following types:

- **One person households** are the households where the dwelling is occupied by only one person at the time of interview.
- **Couple households** are households where the married or common law spouse of the reference person is a member of the household at the time of the interview. This household type may be further broken down into couple households without children (without additional persons), with children (without additional persons), and with additional persons. "Children" are never-married sons, daughters, or foster children of the reference person and may be any age. "Additional persons" include sons, daughters and foster children whose marital status is other than "single, never-married", other relatives by birth or marriage, and unrelated persons.
- **Lone-parent households** are households where the reference person has no spouse at the time of interview and there is at least one child (never-married son, daughter, or foster child of the reference person). The lone-parent households for which data are presented do not include any additional persons.
- **Other households** are households composed of relatives only or households having at least one household member who is unrelated to the reference person (e.g., lodger, roommate, employee). Relatives may include:

  - son, daughter, or foster child of the reference person whose marital status is other than single, never-married;
  - relatives of the reference person by birth or marriage (not spouse, son, daughter or foster child).

4.6.6 Size of area of residence

Sampled dwellings are assigned to the following groups depending on the area in which they are located according to the 2006 Census boundaries and population size.

Population centres

1,000,000 and over
500,000 to 999,999
250,000 to 499,999
100,000 to 249,999
30,000 to 99,999
1,000 to 29,999

Rural

4.6.7 Population centre

Area with a population of at least 1,000 or more and a density of 400 or more people per square kilometre. Population centres are classified as either small, medium, or large as defined below:

- Small population centre: 1,000 to 29,999
- Medium population centre: 30,000 to 99,999
- Large urban population centre: 100,000 and over

4.6.8 Rural area

All areas outside population centres are considered rural. Taken together, population centres and rural areas cover all of Canada.

4.6.9 Age of reference person

Households are grouped according to the age the reference person as the following:

– Less than 30 years

– 30 to 39 years

– 40 to 54 years

– 55 to 64 years

– 65 years and over

4.7 Statistics in the standard tables

4.7.1 Aggregate expenditure

Weighted sum of expenditures for a given item for a group of households.

4.7.2 Average expenditure per household

Aggregate expenditures for a group of households divided by the estimated number of households of the same group. The average is based on all households, including those having reported a value of zero.

4.7.3 Percentage of household reporting

Only for the section "Household characteristics" of the tables related to average household expenditures as well as the table related to dwelling characteristics. Corresponds to the percentage of households having reported a particular characteristic of their household or dwelling.

5 The relationship between expenditure estimates from the SHS and the System of National Accounts

Users should note some important differences between estimates of total current consumption from the Survey of Household Spending (SHS) and personal expenditure on consumer goods and services from the System of National Accounts (SNA). Data from the SHS are an important, but by no means the only, source of data used by the SNA in the compilation of their accounts.

Current expenditure estimates for both the Survey of Household Spending and the System of National Accounts cover all personal outlays on goods and services by Canadian residents at home and abroad. In addition, personal expenditure on consumer goods and services from the SNA includes the operating expenditure of "associations of individuals", which include private non profit organizations such as charitable institutions, labour unions, private pension funds, mutual funds, mutual insurance companies and similar non-commercial groups serving households. These organizations are regarded as groups of persons acting collectively for the benefit of the community.

Estimates from the National Accounts include expenditures made in the northern territories. SHS estimates include data for the north only for years when the survey is conducted there. The SHS has included northern data in its Canada totals for 1997, 1998, 1999, 2001, 2003, 2005, 2007 and 2009.

Data on the expenditures of persons living alone who died, emigrated, or were institutionalized during the survey year are excluded from the SHS but are included in the National Accounts. Unlike the SHS, the National Accounts include data for Canadian residents based overseas, such as diplomats and military personnel.

The SHS presents information about the purchase of both new and used goods. In the National Accounts, personal expenditure includes spending on new goods, but for used goods previously owned by the personal sector, only the mark-up is included.

Several expenditures that are not directly incurred by household members are assigned imputed values in the National Accounts. For example, National Accounts assigns imputed values for the following: the cost of farm products consumed directly in farm households and the cost of items received by employees in lieu of wages.

An imputation is also made for household expenditure on the financial intermediation services of banks and other financial institutions for which no explicit charges are recorded, e.g., the portion of bank interest charges that represent administration costs.

In the SHS, shelter expenditures for homeowners include items such as property taxes, homeowners' insurance, regular mortgage payments, utilities, and spending on maintenance and repairs. In the National Accounts, personal spending on shelter for homeowners is determined by imputing a rental value for their dwellings.

Total current consumption in the SHS and total personal expenditure in the National Accounts cover mainly the same categories of goods and services. However, total current consumption in the SHS includes some items that are classified as transfer payments and excluded from total personal expenditure in the National Accounts, such as vehicle license fees, public medical insurance premiums and the transfer portion of interest on consumer debt.

6 Derivation of data tables

This section explains how the SHS data tables have been derived. It then explains the calculations used most frequently to manipulate the data. Users are advised to refer to this section before doing their data analysis.

As stated above, SHS respondents must complete a questionnaire and a daily expenditure diary. However, some of them do not complete a diary for various reasons (e.g., refusal). Therefore, different weights are calculated for the interview questionnaire and diary, resulting in the use of two sets of weights, which makes using the data more complicated.

6.1 Percentage of households reporting

Starting with the 2010 SHS, the number or percentage of households reporting can no longer be used for expenditures, because of the different reference periods in the data collection method. Because of these different reference periods, the percentage of households reporting cannot be compared across different expenditures. As well, because a comparison is not possible, the concept cannot be extended to expenditure categories (e.g., housing) that include items for which data are collected using reference periods of different lengths.

Therefore, an estimate of the average expenditure per household reporting cannot be calculated, and the estimates of average expenditures in the SHS tables are averages for all households. The concept of percentage of households reporting is only applicable to household or dwelling characteristics.

6.2 Estimates of number of households

Estimates are generated using two sets of weights, one for the interview and the other for the diary. Adjustments made during weighting ensure that the estimate of the number of households at the provincial level using either set of weights is equivalent for the following domains:

- household sizes of one, two, or three or more persons; and
- household income groups defined according to provincial quintiles.

By default, the estimate of the number of households for any aggregation of these domains also results in equivalent estimates.

For any other domain, an estimate of the number of households may differ somewhat depending on the reliability of these estimates. The estimate of the number of households in the SHS tables has been produced using interview weights, as opposed to diary weights.

6.3 Estimates of aggregate expenditure and average per household

Estimates using both interview and diary expenditure data are produced in two steps: estimates are produced separately from interview and diary data, and then they are added together.

Specifically, for aggregate expenditure estimates, which are weighted sums of expenditure items for a group of households, the weighted sum of household expenditures from the interview data is added to the weighted sum of expenditures from the diary data.

For the average expenditure per household, the interview average expenditure per household is calculated using estimates of aggregate expenditure from the interview data divided by the sum of the interview weights. Similarly, the diary average expenditure per household is estimated using estimates of aggregate expenditure from the diary data divided by the sum of the diary weights. The two components are then added to obtain the average expenditure per household. With this approach, the combined interview and diary average expenditure per household does not exactly match the combined interview and diary aggregate expenditure divided by the estimated number of households (produced using the interview weights) for domains in which the interview and diary estimates do not match. Nevertheless, the approach ensures that the sum of the average expenditure per household for all categories equals the total average expenditure per household.

6.4 Examples of expenditure estimates

The tables in this section contain examples of expenditure estimates produced separately from interview data and from diary data, as well as an example of expenditure estimates where interview and diary data have to be combined.

6.4.1 Example of expenditure estimates from interview data

For technical reasons, the estimated number of households and the estimated average household expenditure and aggregate expenditure are presented in separate tables in this document (for example Table 7 and Table 8) while these estimates are included in the same table in the Standards Tables available.

Text table 7
Estimated number of households from interview data, by household tenure

	All households	Owner without mortgage	Owner with mortgage	Renter
	number			
Estimated number of households	13,342,939	4,197,268	4,744,602	4,401,069

Text table 8
Average household expenditure and aggregate expenditure from interview data, by household tenure

	All households		Owner without mortgage		Owner with mortgage		Renter	
	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure
	dollars							
Shelter	14,997	200,106,140,074	9,553	40,097,823,999	23,637	112,149,429,815	10,874	47,858,886,260
Household furnishing and equipment	1,880	25,088,388,319	2,068	8,715,793,019	2,562	12,194,271,345	955	4,178,323,956
Clothing and accessories	3,448	46,006,377,839	3,306	13,878,074,263	4,510	21,399,598,633	2,439	10,728,704,943
Transportation	10,840	144,643,264,523	12,457	52,402,570,321	13,787	65,534,657,750	6,092	26,706,036,453

6.4.2 Example of expenditure estimates from diary data

Text table 9
Estimated number of households from diary data, by household tenure

	All households	Owner without mortgage	Owner with mortgage	Renter
	number			
Estimated number of households (diary weight)	13,342,939	4,233,204	4,781,232	4,328,504

Text table 10
Average household expenditure and aggregate expenditure from diary data, by household tenure

	All households		Owner without mortgage		Owner with mortgage		Renter	
	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure
	dollars							
Food expenditures	7,443	99,312,750,599	7,820	33,101,771,055	8,840	42,265,603,166	5,532	23,945,376,377
Food purchased from stores	5,377	71,739,756,560	5,727	24,242,539,082	6,397	30,585,461,216	3,907	16,911,756,261
Food purchased from restaurant	2,066	27,572,994,039	2,093	8,859,231,973	2,443	11,680,141,950	1,625	7,033,620,116

6.4.3 Example of estimates from both interview and diary expenditure data

The two following tables are a typical example of average expenditure per household and aggregate expenditure tables available to users.

Text table 11
Estimated number of households and average household size from interview data, by household tenure

	All households	Owner without mortgage	Owner with mortgage	Renter
	number			
Estimated number of households	13,342,939	4,197,268	4,744,602	4,401,069
Average household size	2.48	2.32	3.03	2.05

Text table 12
Average household expenditure and aggregate expenditure from interview data and diary data, by household tenure

	All households		Owner without mortgage		Owner with mortgage		Renter	
	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure	Average household expenditure	Aggregate expenditure
	dollars							
Total expenditure	38,608	515,156,921,354	35,204	148,196,032,657	53,336	253,543,560,709	25,892	113,417,327,989
Food expenditures	7,443	99,312,750,599	7,820	33,101,771,055	8,840	42,265,603,166	5,532	23,945,376,377
Food purchased from stores	5,377	71,739,756,560	5,727	24,242,539,082	6,397	30,585,461,216	3,907	16,911,756,261
Food purchased from restaurant	2,066	27,572,994,039	2,093	8,859,231,973	2,443	11,680,141,950	1,625	7,033,620,116
Shelter	14,997	200,106,140,074	9,553	40,097,823,999	23,637	112,149,429,815	10,874	47,858,886,260
Household furnishing and equipment	1,880	25,088,388,319	2,068	8,715,793,019	2,562	12,194,271,345	955	4,178,323,956
Clothing and accessories	3,448	46,006,377,839	3,306	13,878,074,263	4,510	21,399,598,633	2,439	10,728,704,943
Transportation	10,840	144,643,264,523	12,457	52,402,570,321	13,787	65,534,657,750	6,092	26,706,036,453

The intermediate tables 7 to 10 above are not available to the users, but the following section gives examples on how to obtain other estimates using tables such as 11 and 12 above.

6.5 Calculating various estimates using the tables

The following explains the calculations used most frequently to manipulate SHS expenditure data.

6.5.1 How to calculate the average expenditure per person

To calculate the average expenditure per person for a given category, divide the average expenditure per household for that category (Table 12) by the average household size (found on the second line of Table 11).

For example, the average expenditure per person on food per renter household is calculated as follows:

$$\frac{\text{Average expenditure per renter household on food}}{\text{Average size of renter households}}$$

$$\text{Example : } \frac{\$5{,}532}{2.05} = \$2{,}699$$

When comparing estimates of average expenditure per person, note that household composition (number of children and adults) is a significant factor in many expenditure patterns

6.5.2 How to calculate the percentage of total average household expenditure (budget share)

To calculate the percentage of total average household expenditure represented by an expenditure category (budget share), divide the average expenditure per household for the expenditure category by the total average expenditure per household, and then multiply by 100.

For example, using the Table 12, the percentage of total average expenditure per household represented by the average expenditure per household on food, for renter households, is calculated as follows:

$$\frac{\text{Average expenditure per renter household on food}}{\text{Total average expenditure per renter household}} \times 100$$

$$\text{Example : } \frac{\$5{,}532 \times 100}{\$25{,}892} = 21.37\%$$

6.5.3 Combining expenditure categories into your own groupings

The average expenditure per household for different expenditure categories in a column can be added together to make new subtotals.

For example, the average expenditure per renter household on shelter and transportation is calculated as follows:

Average expenditure per renter household on shelter + transportation (renter households)

Example : $10,874 + $6,092 = $16,966

6.5.4 Calculating aggregate spending by combining data columns

To calculate aggregate spending for multiple columns, add the aggregate spending in the columns for an expenditure category.

For example, aggregate spending by owner households (with or without a mortgage) on food is calculated as follows:

Aggregate spending on food by mortgage-free owner households +
Aggregate spending on food by owner households with a mortgage

Example : $33,101,771,055 + $42,265,603,166 = $75,367,374,221

6.5.5 How to calculate the average expenditure per household by combining data columns

To calculate the average expenditure for multiple columns, add the aggregate spending in the columns for an expenditure category (Table 12), and then divide the total by the sum of the estimated number of households in those columns in Table 11.

For example, the average expenditure per owner household (with or without a mortgage) on food is calculated as follows:

$$\frac{\text{Aggregate spending on food by mortgage-free owner households + Aggregate spending on food by owner households with a mortgage}}{\text{Estimated number of mortgage-free owner households + Estimated number of owner households with a mortgage}}$$

Example : $\frac{\$33,101,771,055 + \$42,265,603,166}{4,197,268 + 4,744,602} = \$8,429$

Note: Since the estimated variable comes from diary data and the estimated number of households in the domains used is slightly different depending on whether it is calculated using interview weights or diary weights, the estimate only approximates the estimate that would have been obtained if the combined columns constituted a pre-existing domain. In fact, the estimated number of households using diary weights can be derived for each column by dividing aggregate spending for an expenditure category from the diary by the average expenditure for that expenditure category. The estimated number of households using diary weights is then placed in the denominator. For food expenditures from Table 10, the result is the following:

Estimated number of mortgage-free owner households (diary weights)

$$\frac{\$33,101,771,055}{\$7,820} = 4,232,963$$

Estimated number of owner households with a mortgage (diary weights)

$$\frac{\$42,265,603,166}{\$8,840} = 4,781,177$$

These estimates differ slightly from those in the table "Estimated number of households from diary data by household tenure" (Table 9) because of rounding.

The resulting average expenditure per owner household (with or without a mortgage) on food is as follows:

$$\frac{\$33,101,771,055 + \$42,265,603,166}{4,232,963 + 4,781,177} = \$8,361$$

6.5.6 Calculating the percentage of aggregate spending for all households (market share)

Expenditure share, or market share, is the percentage of the aggregate spending for an expenditure category that can be attributed to a particular subgroup of households, e.g., the percentage of all food expenditures made by renter households.

It is calculated by dividing the household subgroup's aggregate spending for an expenditure category by the aggregate spending for the expenditure category for all households and then multiplying by 100.

For example, the percentage of food expenditures made by renter households is calculated as follows:

$$\frac{\text{Aggregate spending on food by renter households}}{\text{Aggregate spending on food by all households}} \times 100$$

$$\text{Example : } \frac{\$23,945,376,377 \times 100}{\$99,312,750,599} = 24.11\%$$

7 Related products and services

7.1 Detailed tables

The following standard tables are available:

62F0031X	Detailed Average Household Expenditure for Canada and Provinces
62F0032X	Detailed Average Household Expenditure by Household Income Quintile for Canada and Provinces
62F0033X	Detailed Average Household Expenditure by Housing Tenure for Canada
62F0034X	Detailed Average Household Expenditure by Household Type for Canada
62F0035X	Detailed Average Household Expenditure by Size of Area of Residence for Canada
62F0041X	Dwelling Characteristics and Household Equipment for Canada and Provinces
62-203-X	Detailed Average Household Expenditure by Age of Reference Person for Canada
62-204-X	Detailed Average Household Food Expenditure for Canada and Provinces

7.1.1 Household Expenditures Research Paper Series

This series provides detailed documentation on issues, concepts, methodology, data quality and other relevant research related to household expenditures from the Survey of Household Spending.

62F0026MIE Household Expenditures Research Paper Series

7.1.2 CANSIM

CANSIM (the Canadian Socio-Economic Information Management System) is a data base consisting of multi-dimensional cross-sectional tables.

Nine tables presenting annual information from the Survey of Household Spending are available. Table 203-0021 presents household detailed level expenditure data, while tables 203-0022 to 203-0026 present data according to household income quintile, household type, household tenure, size of area of residence and age of reference person respectively. Table 203-0027 presents data on dwelling characteristics and household equipment. Finally, tables 203-0028 and 203-0029 provide detailed food expenditure data.

7.1.3 Custom tabulations

For clients with more specialized data needs, custom tabulations can be produced on a cost-recovery basis. Custom tabulations can be produced to your specifications on a contract basis (subject to confidentiality restrictions). Aggregate data at the detailed expenditure level are also available on a custom basis.

8 References

[1] Charlebois, J. and Dubreuil, G. 2011. Variance Estimation for the Redesigned Survey of Household Spending. Proceedings of the Survey Methods Section, Statistical Society of Canada Annual Meeting, June 2011.

Appendix I — Diary's response rates among the respondents to the interview

Text table 1
Diary's response rates among the respondents to the interview, Canada and provinces, 2010

	Interview respondents	Diaries [1]			
		Refusal	Unusable	Usable	Response rate [2]
	number				percentage
Canada	13,075	3,567	446	9,062	69.3
Atlantic provinces	4,338	989	198	3,151	72.6
Newfoundland and Labrador	1,197	231	59	907	75.8
Prince Edward Island	587	163	20	404	68.8
Nova Scotia	1,354	375	62	917	67.7
New Brunswick	1,200	220	57	923	76.9
Quebec	1,698	426	49	1,223	72.0
Ontario	1,758	534	44	1,180	67.1
Prairie provinces	3,739	1,094	112	2,533	67.7
Manitoba	1,198	319	29	850	71.0
Saskatchewan	1,250	417	33	800	64.0
Alberta	1,291	358	50	883	68.4
British Columbia	1,542	524	43	975	63.2

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
2 (Usable diaries/Interview respondents) x100.

Appendix II — Response rates by collection month

Text table 1
Interview's response rates by collection month, 2010

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response [1] rate
	number					percentage
All months	19,541	1,692	4,015	759	13,075	66.9
January	1,649	131	352	57	1,109	67.3
February	1,620	157	386	66	1,011	62.4
March	1,648	104	353	78	1,113	67.5
April	1,590	142	314	54	1,080	67.9
May	1,657	117	333	61	1,146	69.2
June	1,575	149	311	55	1,060	67.3
July	1,679	173	321	86	1,099	65.5
August	1,640	132	321	53	1,134	69.1
September	1,580	127	323	59	1,071	67.8
October	1,619	130	328	49	1,112	68.7
November	1,615	150	336	72	1,057	65.4
December	1,669	180	337	69	1,083	64.9

1. (Respondent households/Eligible sampled households)x100.

Text table 2
Diary's response rates by collection month, 2010

	Eligible [1] sampled households	Interview [2] non-respondents	Diaries [3]			Response [4] rate
			Refusal	Unusable	Usable	
	number					percentage
All months	19,541	6,466	3,567	446	9,062	46.4
January	1,649	540	252	29	828	50.2
February	1,620	609	219	31	761	47.0
March	1,648	535	298	41	774	47.0
April	1,590	510	277	50	753	47.4
May	1,657	511	310	50	786	47.4
June	1,575	515	285	40	735	46.7
July	1,679	580	315	34	750	44.7
August	1,640	506	336	30	768	46.8
September	1,580	509	295	40	736	46.6
October	1,619	507	293	34	785	48.5
November	1,615	558	337	26	694	43.0
December	1,669	586	350	41	692	41.5

1. The eligible sampled households are the same for the interview and the diary.
2. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. (Usable diaries/Eligible sampled households)x100.

Appendix III — Response rates by size of area of residence and by dwelling type

Text table 1
Interview's response rates by size of area of residence, 2010

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response[1] rate
	number					percentage
All population centres and rural area	19,541	1,692	4,015	759	13,075	66.9
Population centre 1,000,000 and over	5,412	597	1,138	234	3,443	63.6
Population centre 500,000 to 999,999	1,638	157	354	67	1,060	64.7
Population centre 250,000 to 499,999	1,577	125	393	83	976	61.9
Population centre 100,000 to 249,999	3,079	267	644	127	2,041	66.3
Population centre 30,000 to 99,999	2,053	145	454	67	1,387	67.6
Population centre 1,000 to 29,999	2,562	196	464	78	1,824	71.2
Rural area	3,220	205	568	103	2,344	72.8

1. (Respondent households/Eligible sampled households)x100.

Text table 2
Diary's response rates by size of area of residence, 2010

	Eligible[1] sampled households	Interview[2] non-respondents	Diaries[3]			Response[4] rate
			Refusal	Unusable	Usable	
	number					percentage
All population centres and rural area	19,541	6,466	3,567	446	9,062	46.4
Population centre 1,000,000 and over	5,412	1,969	1,186	87	2,170	40.1
Population centre 500,000 to 999,999	1,638	578	287	26	747	45.6
Population centre 250,000 to 499,999	1,577	601	261	29	686	43.5
Population centre 100,000 to 249,999	3,079	1,038	552	66	1,423	46.2
Population centre 30,000 to 99,999	2,053	666	324	52	1,011	49.2
Population centre 1,000 to 29,999	2,562	738	446	76	1,302	50.8
Rural area	3,220	876	511	110	1,723	53.5

1. The eligible sampled households are the same for the interview and the diary.
2. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. (Usable diaries/Eligible sampled households)x100.

Text table 3
Interview's response rates by dwelling type, 2010

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response [1] rate
	number					percentage
All dwelling types	19,541	1,692	4,015	759	13,075	66.9
Single detached	12,542	937	2,723	450	8,432	67.2
Double or row/terrace	1,724	159	318	66	1,181	68.5
Duplex, low-rise or high-rise apartment	4,717	532	855	216	3,114	66.0
Other	489	35	90	16	348	71.2
Not available	69	29	29	11	0	0.0

1. (Respondent households/Eligible sampled households)x100.

Text table 4
Diary's response rates by dwelling type, 2010

	Eligible [1] sampled households	Interview [2] non-respondents	Diaries [3]			Response [4] rate
			Refusal	Unusable	Usable	
	number					percentage
All dwelling types	19,541	6,466	3,567	446	9,062	46.4
Single detached	12,542	4,110	2,104	233	6,095	48.6
Double or row/terrace	1,724	543	336	47	798	46.3
Duplex, low-rise or high-rise apartment	4,717	1,603	1,028	146	1,940	41.1
Other	489	141	99	20	229	46.8
Not available	69	69	0	0	0	0.0

1. The eligible sampled households are the same for the interview and the diary.
2. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. (Usable diaries/Eligible sampled households)x100.

Appendix IV — Diary's response rates among the respondents to the interview, by various households' characteristics

Text table 1
Diary's response rates among the respondents to the interview, by household type, 2010

	Interview respondents	Diaries [1]			
		Refusal	Unusable	Usable	Response rate [2]
	number				percentage
All household types	13,075	3,567	446	9,062	69.3
One person household	3,428	1,115	163	2,150	62.7
Couple without children	3,891	868	90	2,933	75.4
Couple with children	3,562	938	84	2,540	71.3
Couple with other related or unrelated person(s)	451	112	19	320	71.0
Lone-parent household without additional persons	965	287	34	644	66.7
Other household with related or unrelated person(s)	778	247	56	475	61.1

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
2 (Usable diaries/Interview respondents)x100.

Text table 2
Diary's response rates among the respondents to the interview, by household tenure, 2010

	Interview respondents	Diaries [1]			
		Refusal	Unusable	Usable	Response rate [2]
	number				percentage
All household tenures	13,075	3,567	446	9,062	69.3
Owner without mortgage	4,788	1,158	120	3,510	73.3
Owner with mortgage	4,484	1,147	122	3,215	71.7
Renter (with or without rent paid)	3,803	1,262	204	2,337	61.5

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
2 (Usable diaries/Interview respondents)x100.

Text table 3
Diary's response rates among the respondents to the interview, by age of the reference person, 2010

	Interview respondents	Diaries [1]			
		Refusal	Unusable	Usable	Response rate [2]
	number				percentage
Reference person of all ages	13,075	3,567	446	9,062	69.3
Less than 30 years	1,290	430	49	811	62.9
30 to 39 years	2,015	572	77	1,366	67.8
40 to 54 years	4,064	1,112	125	2,827	69.6
55 to 64 years	2,575	616	81	1,878	72.9
65 years and over	3,131	837	114	2,180	69.6

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
2 (Usable diaries/Interview respondents)x100.

Text table 4
Diary's response rates among the respondents to the interview, by before-tax income quintile, 2010

	Interview respondents	Diaries [1]			
		Refusal	Unusable	Usable	Response rate [2]
	number				percentage
Total of all income quintiles	13,075	3,567	446	9,062	69.3
Lowest quintile	2,585	842	147	1,596	61.7
Second quintile	2,696	741	103	1,852	68.7
Third quintile	2,643	639	77	1,927	72.9
Fourth quintile	2,624	645	77	1,902	72.5
Highest quintile	2,527	700	42	1,785	70.6

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
2 (Usable diaries/Interview respondents)x100.

Appendix V — Impact of expenditure imputation on communications services, cablevision, satellite distribution and security services

Text table 1
Impact of expenditure imputation on communications services, cablevision, satellite distribution and security services, Canada, 2010

	Impact of imputation [1]
	percentage
Landline telephone services	40.6
Cell phone, pager and handheld text messaging services	11.9
Rental of cablevision services	49.7
Rental of satellite TV or radio services	24.3
Internet access services	57.5
Home security services	5.3

1. The impact of imputation represents the proportion of the total value of the estimate that is obtained from imputed data.

Appendix VI — Imputation of dwelling characteristics and household equipment

Text table 1
Percentage of households requiring imputation of dwelling characteristics or household equipment, Canada and provinces, 2010

	Number of variables imputed (out of 20)			
	1	2	3 or more	Total
	percentage			
Canada	3.9	0.7	0.1	4.7
Newfoundland and Labrador	3.3	1.0	0.1	4.4
Prince Edward Island	4.9	1.9	0.0	6.8
Nova Scotia	3.9	0.4	0.0	4.3
New Brunswick	4.2	0.6	0.2	4.9
Quebec	4.8	0.4	0.1	5.2
Ontario	3.2	0.5	0.2	3.9
Manitoba	4.7	0.9	0.1	5.7
Saskatchewan	3.8	0.5	0.0	4.3
Alberta	2.7	0.9	0.0	3.6
British Columbia	4.2	1.0	0.1	5.3

Appendix VII — Breakdown of the imputed expenditure codes by the initial level of the information from the respondent

Text table 1

Distribution of imputation of detailed expenditure codes by the initial level of information collected from the section of the Diary on Food from stores and other goods and services, Canada, 2010

	percentage
Initial collected information (initial expenditure category)	
Specific food group	47.10
Food unspecified	14.37
Grocery item unspecified	4.10
Communication equipment and services unspecified	0.14
Child care unspecified	0.04
Pet expenses - unspecified	0.17
Household supplies unspecified	0.21
Furnishings and decor unspecified	0.07
Home tools and equipment unspecified	0.19
Household equipment, parts and accessories unspecified	0.44
Apparel unspecified	0.67
General repair unspecified	0.55
Parts and supplies for automobiles and trucks unspecified	0.17
Medicine unspecified	0.66
Eye care goods and services unspecified	0.06
Personal care supplies and equipment unspecified	0.70
Massage unspecified	0.02
Personal care services unspecified	0.04
Video game systems and parts unspecified	0.11
Camera and accessories unspecified	0.04
Movies unspecified	0.53
Printed matter unspecified	0.10
Tobacco products unspecified	0.15
Games of chance unspecified	0.11
Services unspecified	0.93
Goods unspecified	16.79
Donations and gifts of money unspecified	0.04
Gifts of money and other support payments to persons unspecified	0.31
Donations unspecified	0.55
Other goods and services unspecified	0.58
Don't know	10.05

Appendix VIII — Imputation rates by method for recording the expenses in the diary

Text table 1

Imputation rates by method for recording the expenses in the section of the Diary on Food from stores and other goods and services, Canada, 2010

	Transcribed items	Items from a receipt	All items
	percentage		
Type of imputation			
Imputation of a missing cost for a reported expense			
Food from stores	2.8	0.6	1.4
Other goods and services	3.3	0.7	2.1
All expenditures	3.0	0.6	1.7
Imputation of expenditure items (and their individual cost) from a total expense			
Food from stores	36.8	1.4	14.9
Other goods and services	18.3	2.7	11.2
All expenditures	29.2	1.8	13.7
Imputation of detailed expenditure code			
Food from stores	6.6	9.1	8.1
Other goods and services	4.6	9.4	6.8
All expenditures	5.8	9.1	7.7

Text table 2

Imputation rates by method for recording the expenses in the section of the Diary on Snacks, beverages and meals purchased from restaurants or fast-food outlets, Canada, 2010

	Transcribed items	Items from a receipt	All items
	percentage		
Type of imputation			
Imputation of total cost	0.64	1.39	0.72
Imputation of costs for alcoholic beverages	0.03	0.09	0.04
Imputation of restaurant type (breakfast, lunch, dinner or snack and beverages)	7.09	21.30	8.51